

QUT Digital Repository:
<http://eprints.qut.edu.au/>



This is the author's version published as:

Carrillo, Francisco Javier, Metaxiotis, Kostas, & Yigitcanlar, Tan
(2010) *Urban, regional, national and global knowledge capital
[Guest editorial]*. Journal of Knowledge Management, 14(5), pp. 631-
634.

Copyright 2010 Emerald group Publishing Limited

Guest editorial

Urban, regional, national and global knowledge capital

Francisco Javier Carrillo, Kostas Metaxiotis and Tan Yigitcanlar

The collection of papers included in the 2010 annual special issue on Knowledge Based Development (KBD) constitute a good sample of the multiple levels of analysis and multiple disciplines involved in the field. As we move from the individual through the organizational to the social, from the physical dimensions of proximity to social dimensions such as culture and trust, from geography to anthropology, we begin to gain a composite perspective of development. Thus, rather than with a series of unrelated studies, we end up with a mosaic of the research and practices that are shaping KBD as a discipline of its own, and providing analysts and decision makers with new conceptual and methodological tools to develop appropriate frameworks and policies. Let us begin from the micro level, at the edge of the inter-organizational events defining KBD, moving on to the cluster, regional and national level, through the more conceptual and global scope of knowledge-intensive capital flows.

One of the elementary agents in KBD is the technological gatekeeper. Over the years, this annual KBD issue has included a number of papers referring to this role. In their contribution to this year's SI, Vito et al go beyond the characterization of the gatekeeper as an economic actor, looking at the conditions that support its capacity for knowledge mobilization. Specifically, they investigate how learning behavior and network structure affect mobility. The former is expressed in explorative vs. exploitative behavior, the later in weak vs. strong inter-organizational ties. This investigation focused in universities, trying to determine the extent to which their learning and networking capabilities have an impact on collaborative R&D relationships. The study involves a longitudinal case-of three British universities.

Findings by Vito et al suggest that the knowledge mobility of these universities relates positively to explorative learning behaviour and stronger inter-organizational ties. More explorative behaviour would expand their technological bases and in turn lead to more R&D collaboration. This finding underscores the importance of explorative R&D collaboration partners, although timing and maturity issues emerge. Based on these findings, a number of propositions are drawn by the authors, enabling further analysis. On the whole, the study seems to encourage robust and stable partnerships for universities, where knowledge and innovation flows are facilitated by trust.

Interorganizational collaboration and networking are at the core of Paper by Mugellesi et al, as they describe knowledge management activities at ESOC, the European Space Operations Centre of the European Space Agency -ESA. This agency promotes cooperation among its 18 member states as well as with other countries and agencies. Specifically, ESOC operates the European satellites including ground stations, mission and control systems, flight mechanics and spacecraft operations. Hence, knowledge management at ESOC involves a number of processes, including, capture, sharing, and preservation that become the focus of this paper. In particular, the video-recording of experts as a method for knowledge transfer.

A description of the knowledge management approach at ESOC is provided first. At the core of this approach is the breakdown of knowledge in individual technical domains followed by coverage analysis and criticality assessment. Such framework becomes the reference for best knowledge acquisition, transfer and storage locus identification and subsequent knowledge management practices and guidelines. This includes the knowledge capture and transfer method that is the substance of this study. The study suggests that a sharing culture is essential to effective knowledge transfer. It identifies a number of barriers and suggests possible remedies. Also, multi-cultural aspects are given due consideration.

Another conceptual category that has acquired presence in this annual special issue is that of proximity. The paper by Evers , Gerke and Menkhoff focuses on Knowledge Clusters and Knowledge Hubs. In doing so, they start by revisiting the importance of proximity in the ubiquitous knowledge society, particularly in knowledge-based industries and clusters. A preliminary conclusion suggests that whereas industrial clusters rely on reduced transaction costs through distributed or virtual teams, knowledge clusters are more dependent on direct transfer of tacit knowledge and therefore, on physical proximity. On this basis they define the knowledge architecture of knowledge clusters and differentiate k-clusters and k-hubs.

The former elements enable Evers et al to introduce and exemplify the concept of Epistemic Landscapes in spatial terms (regional distribution of k-assets). The authors focus on the development strategies of key agents in shaping epistemic landscapes. Hence, geographical k-mapping and design of epistemic landscapes provide a tool to visualize the regional distribution of k-assets. The authors claim that such tool would improve planning, management and assessment of knowledge-intensive regions.

López-Sáez et al also look at Knowledge-Intensive Clusters. Specifically, they look at external knowledge acquisition within knowledge clusters from the perspective of the well-known Nonaka and Takeuchi's SECI model. In doing so, they try to provide empirical evidence on the way that organizations learn from their environment. This study was conducted on a sample of knowledge-intensive firms from Boston's Route 128.

An overview of the literature on external knowledge acquisition, the avoidance of knowledge obsolescence and cluster benefits leads to the conclusion that firms can build new capabilities through explorative learning by associating to external knowledge sources. This is followed by the field research itself and the statistical analysis. The first claim on the grounds of the empirical findings is that three knowledge acquisition processes account for a majority on analyzed instances. That the first of these is socialization, resonates with Evers et al paper insofar as proximity becomes a favourable condition for knowledge transfer in regional clusters and hubs. Externalization and explicit knowledge processing are the other two processes found dominant in external k-acquisition.

The paper by Joshi and Chawla moves from the regional to the national level. It report a study of Knowledge Management practices in India, across three industries: manufacturing, IT and IT enabled services (ITES) and power generation & distribution. Industry-specific patterns of KM utilization were studied with regard to process, leadership, culture, technology and measurement. 17 ITES, 32 manufacturing and 8 energy companies comprised the sample to which AQPC's Knowledge Management Assessment Tool was applied.

A mean raw scores analysis revealed that IT Enabled service organizations are ahead of both Manufacturing and Power Generation & Distribution companies in only two dimensions: Leadership in KM and KM Measurement. These results are regarded as far below what was expected, given the knowledge-intensive nature of ITES companies. The authors discuss the relationship between these results and prior studies on Indian and European companies reporting barriers to knowledge sharing due to poor communication, lack of trust and job security concerns. Overall, these results underscore the importance of human and cultural aspects in KM implementation. These become an important part of the organizational capabilities in besides systems, procedures, technology and leadership.

Next, the paper by Kirsten Martinus shifts to the urban arena to look at the impact of hard infrastructure and amenities in generating knowledge and innovation. By reviewing the debate between urban density and infrastructure it explores spatial links between economic growth, innovation and knowledge productivity. This brings a connection with the paper by Evers et al, insofar proximity to knowledge sources and access to social capital networks become prominent in knowledge-intensive communities. Martinus draws on the concept of Knowledge Productivity to identify policies having major impact on k-production efficiency, namely human capital attractiveness and KBD infrastructure such as ICT, transportation, education facilities, etc. The author reviews innovation enhancement through urban form and the density debate to look for optimal configuration of innovative spaces relative to density.

The paper's findings suggest that the positive contribution of density to urban innovation and connectivity is constrained by a city's infrastructure and amenity levels. Martinus claims to provide the conceptual foundations of five types of infrastructure key to urban k-productivity: connectivity, education, culture,

clusters and diversity. In doing so, this paper connects also with the abovementioned topic of clustering in knowledge-intensive environments.

In their paper, Mohamed and Mohamed provide a quantitative assessment of the criticality of ICTs to sustainable development. Making reference to the mounting signals about the constraints of GDP as the major aggregate measure of development, the authors raise questions about received views of progress and well-being. Within this context, they set to explore the contribution of ICTs to knowledge-based development, particularly in the context of developing countries. Building on state-of-the-art research, they focus on four factors suspected of playing a major role in KBD: Knowledge Management, integrated ICTs infrastructure, ICT capacity building and ICT policy. Resonance with the paper of Martinus insofar it involves k-intensive infrastructure is evident.

Mohamed and Mohamed conducted an international survey of experts from international non-profit organizations that are versed in both ICTs and KBD. They report that many participants agreed that ICTs are critical for sustainable development due to the geographical separation and complexity of international sustainable development. Their findings also suggest that for ICT infrastructure to make a difference, it must be knowledge-oriented. This in turn refers to Joshi and Chawla and the geographical distance issue with the topic of proximity raised by López-Seaz et al as well as by Mugellesi et al and Evers et al. Mohamed and Mohamed conclude with two relevant questions for policy makers (cfr. also Martinus conclusions on k-productivity policies). These questions are: "How do ICTs improve the value proposition of development organizations? How do we better enable the synergy that results from ICTs and the pooling of knowledge for the benefit of sustainable development?"

Finally, the paper by Millar and Choi offers a conceptual analysis of development with regard to knowledge capitals. The authors seek to develop a typology of governance structures that provide an integrated view of knowledge as a global resource with reference to multinational corporations (MNCs). After analyzing existing research on knowledge as a resource and the role of MNCs in creating and disseminating it, they make reference to the debate on the global knowledge gap. The role of the state, international public policy and political economy are also brought into the discussion of social science research of major relevance to KBD.

In trying to integrate the former conceptual inputs to the understanding of knowledge as a global resource, Millar and Choi provide a typology of three governance structures: exchange, entitlement and gifts. This typology is based in turn in three social science disciplines: economics, sociology and anthropology. The paper emphasizes the growing importance of MNCs in global knowledge distribution and the increasing competition for this as a resource. The main implication is that the emergence of MNCs from the developing world are making the analysis of knowledge capitals ever more important.